

Amendments to the Claims

This listing of claims will replace the pending claims in the application.

Listing of Claims:

Claims 1 – 12 (cancelled)

Claim 13 (new): A gas compressor having n stages connected in series, where n is equal to at least 3, each stage being followed by a cooler wherein at least two coolers have different pressure drops for the compressed gas, the cooler having the lower pressure drop being upstream of that having the higher pressure drop.

Claim 14 (new): The compressor of claim 13, in which the cooler of the final stage of the compressor has a higher pressure drop than that of the first stage.

Claim 15 (new): The compressor of claim 14, having at least four stages, in which the final stages of the compressor have a higher pressure drop than the first stages.

Claim 16 (new): The compressor of claim 13, in which at least two coolers have pressure drops differing by at least 30%, or at least 50% or even at least 100%, the cooler having the lower pressure drop being upstream of that having the higher pressure drop.

Claim 17 (new): The compressor of claim 16, in which at least two coolers have pressure drops different by at least 100%, the cooler having the lower pressure drop being upstream of that having the higher pressure drop.

Claim 18 (new): A unit for separating a gas mixture, which includes at least one compressor of claim 13 and means for sending a gas coming from and/or intended for the unit to this compressor.

Claim 19 (new): The air separation unit of claim 18, comprising a cryogenic distillation unit comprising at least one distillation column, means for sending compressed air to a column of the unit, means for withdrawing a liquid from a column of the unit, means for vaporizing the liquid by heat exchange with a compressed gas, the compressed gas having been compressed by at least one of the final stages (or by the final stage) of the compressor and/or the compressed air having been compressed in the compressor.

Claim 20 (new): The unit of claim 19, which includes means for vaporizing the liquid by heat exchange with air coming from one of the final stages (or from the final stage) of the compressor.

Claim 21 (new): A method of separating a gas mixture by cryogenic distillation in a system of columns in which a gas intended for the system of columns or a gas coming from the system of columns is compressed in a compressor of claim 13, the gas leaving the final stage of the compressor being at a pressure above 5 bar, preferably above 10 bar.

Claim 22 (new): The method of claim 13, in which:

- a) a stream of air is compressed to a first pressure;
- b) one portion of the air at the first pressure is boosted to a second pressure of greater than 10 bar;
- c) one portion of the air at the first pressure is sent for distillation in one column of the system of columns;
- d) a liquid stream is withdrawn from one column of the system;
- e) the liquid stream is vaporized by heat exchange with air at the second pressure, wherein

- f) the stream of air at the first pressure is compressed and/or the portion of the air is boosted up to the second pressure in said at least one compressor.